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Patent
Attorney's Docket No. 040010-937

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	
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Harry van der POL	)	Group Art Unit: Unassigned
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Application No.: Unassigned	)	Examiner: Unassigned
	)	
Filed: January 30, 2001	)	
	)	
For: CALIBRATING METHOD AND APPARATUS IN A TELECOMMUNICATION SYSTEM	)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims as follows:

1. (Amended) A method for calibrating [at least] one or more amplifiers (100,200)[, characterised in]:

i) generating a noise signal (N_a+N_i) produced by said one or more amplifiers (100,200) when no input signal (S_i+N_i) is connected (Alt. 2) to at least one amplifier of said one or more amplifiers (100,200), and

ii) using said noise signal (N_a+N_i) as a calibrating signal for estimating a corresponding gain (G) of said one or more amplifiers (100,200) by measuring (600) at at least one output of said one or more amplifiers (100,200) the amount of noise (S_{tot}) of said one or more amplifiers (100,200).

2. (Amended) A method for calibrating [at least] one or more amplifiers (100,200) according to claim 1, wherein [characterised in that further is] said gain (G) is further adjusted in accordance with said calibrating signal.

3. (Amended) A method for calibrating a receiver (1,2)[, characterised in]:

i) generating a noise signal (N_a+N_i) produced by one or more amplifiers (100,200) of said receiver when an input signal (S_i+N_i) is disconnected (Alt. 2) [to] from said receiver; and

ii) using said noise signal (N_a+N_i) as a calibrating signal for estimating a corresponding gain (G) of said one or more amplifiers in said receiver by measuring (600) at the output of the receiver the amount of noise (S_{tot}) of said one or more amplifiers (100,200).

4. (Amended) A method for calibrating a receiver according to claim 3, [characterised in that] wherein [further is] said gain (G) is further adjusted in accordance with said calibrating signal.

5. (Amended) A calibration arrangement (1,2) comprising:

one or more amplifiers (100,200) for amplifying a radio signal (S_i+N_i);

estimating means (600) for estimating a gain (G) of said one or more amplifiers (100,200);

[characterised in that] disconnecting said radio signal (S_i+N_i), while at least one amplifier of said one or more amplifiers (100,200) is producing a calibrating signal (N_a+N_i) as a reference signal into said estimating means (600) for estimating said gain (G) of said radio signal (S_i+N_i).

6. (Amended) A calibration arrangement (1,2) comprising:

one or more amplifiers (100,200) for amplifying a radio signal (S_i+N_i);

estimating means (600) for estimating a gain (G) of said one or more amplifiers (100,200);

[characterised in that] wherein said calibration arrangement (1,2) further comprises:

a switching means (10,30+100) for disconnecting said radio signal (S_i+N_i), while at least one amplifier of said one or more amplifiers (100,200) is producing a calibrating signal (N_a+N_i) as a reference signal into said estimating means (600) for estimating said gain (G) of said radio signal (S_i+N_i) .

7. (Amended) A calibration arrangement (1,2) according to claim 5 [any one of claims 5-6], wherein [characterised in that] said calibrating signal is a pure noise signal (N_a+N_i) of at least one amplifier of said one or more amplifiers (100,200).

8. (Amended) A calibration arrangement (2) according to claim 5 [any one of claims 5-7], wherein [characterised in that] disconnecting said one or more amplifiers (100,200) from said radio signal (S_i+N_i) by disconnecting a power supply (500) from at least one amplifier of said one or more amplifiers (100,200).

9. (Amended) A calibration arrangement (2) according to claim 6 [any one of claims 6-7], wherein [characterised in that] said switching means (30+100) is disconnecting said one or more amplifiers (200) from said radio signal (S_i+N_i) by disconnecting a power supply (500) from at least one amplifier of said one or more amplifiers (100,200).

10. (Amended) A calibration arrangement (1) according to claim 5 [any one of claims 5-7], wherein [characterised in that] disconnecting said one or more amplifiers (100,200) from said radio signal (S_i+N_i) by connecting at least one input of said one or more amplifiers (100,200) to a reference potential (20).

11. (Amended) A calibration arrangement (1) according to claim 6 [any one of claims 6-7], wherein [characterised in that] said switching means (10) is disconnecting said one or more amplifiers (200) from said radio signal (S_i+N_i) by connecting at least one input of said one or more amplifiers (100,200) to a reference potential (20).

12. (Amended) A calibration arrangement (1) according to claim 10 [any one of claims 10-11], wherein [characterised in that] said reference potential is provided by a resistance (20) [through] connected to ground.

13. (Amended) A calibration arrangement (1,2) according to claim 5 [any one of claims 5-12], wherein [characterised in that] the calibration arrangement (1,2) further comprises:

more than one [amplifiers] amplifier (100+200) in a chain for amplifying said received radio signal (S_i+N_i).

14. (Amended) A calibration arrangement (1,2) according to claim 6 [any one of claims 6-7 and 11], wherein [characterised in that] said switching means (10,30+100) is disconnecting said one or more amplifiers (100,200) from said radio signal (S_i+N_i) by disconnecting at least one input of said one or more amplifiers (100,200) which is closest to [where] an input of said radio signal (S_i+N_i) [is inputted].

15. (Ameded) A calibration arrangement (1,2) according to claim 5 [any one of claims 5-14], wherein [characterised in that] said calibrating signal [is] represents a noise power (kTBF) from said one or more amplifiers (100,200) that comprises:

a known Boltzman constant (k);

a known bandwith (B) of said noise power;

a known noise figure of said noise power;

a measured temperature (T) of said receiver.

16. (Amended) A calibration arrangement (1,2) according to claim 5 [any one of claims 5-15], [characterised in that] an output from the last one of said one or more amplifiers (100,200) in a chain is connected to an analog-digital-converter (400) for converting analog signals into digital signals.

17. (Amended) A calibration arrangement (1,2) according to claim 15, [characterised in that] wherein said gain (G) of said radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) including said noise power (kTBF) when an output signal (S_{tot}) is measured at at least one output of said one or more amplifiers (100,200).

18. (Amended) A calibration arrangement (1,2) according to claim 5 [any one of claims 5-16], wherein [characterised in that] said gain (G) of said radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) when an output signal (S_{tot}) is measured at at least one output of said one or more amplifiers (100,200).

19. (Amended) A calibration arrangement (1,2) according to claim 16 [any one of claims 15, 16], wherein [characterised in that] said gain (G) of said radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) when an output signal (S_{tot}) is measured after said analog-digital-converter (400).

20. (Amended) A receiver (1,2) comprising:

means (300) for receiving a radio signal (S_i+N_i);

one or more amplifiers (100,200) for amplifying said received radio signal (S_i+N_i);

estimating means (600) for estimating a gain (G) of said receiver (12);

[characterised in that] wherein said receiver further comprises:

a switching means (10,100) for disconnecting said received signal (S_i+N_i), while at least one amplifier of said one or more amplifiers (100,200) is producing a calibrating signal (N_a+N_i) as a reference signal [into] to said estimating means (600) for estimating said gain (G) of said radio signal (S_i+N_i).

21. (Amended) A receiver (1,2) according to claim 20, wherein [characterised in that] said calibrating signal is a pure noise signal (N_a+N_i) of at least one amplifier of said one or more amplifiers (100,200).

22. (Amended) A receiver (1) according to claim 20 [any one of claims 20-21], [characterised in that] wherein said switching means (10) is disconnecting said radio signal (S_i+N_i) by connecting at least one input of said one or more amplifiers (100) to a reference potential (20).

23. (Amended) A receiver (1) according to claim 22, wherein [characterised in that] said reference potential is provided by a resistance (20) [through] connected to ground.

24. (Amended) A receiver (2) according to claim 20 [any one of claims 20-21], wherein [characterised in that] said switching means (100) is disconnecting said one or more amplifiers (100,200) from said radio signal (S_i+N_i) by disconnecting a power supply (500) from at least one amplifier of said one or more amplifiers (100,200).

25. (Amended) A receiver (1,2) according to claim 20 [any one of claims 20-24], wherein [characterised in that] the receiver (1,2) further comprises:

more than one amplifier [amplifiers] (100+200) in a chain for amplifying said received radio signal (S_i+N_i).

26. (Amended) A receiver (1,2) according to claim 20 [any one of claims 20-25], wherein [characterised in that] said calibrating signal [is] represents a noise power (kTBF) from said one or more amplifiers (100,200) that comprises:

a known Boltzman constant (k);

a known bandwith (B) of said noise power;

a known noise figure of said noise power;

a measured temperature (T) of said receiver.

27. (Amended) A receiver (1,2) according to claim 20 [any one of claims 20-26], wherein [characterised in that] an output from the last one of said one or more amplifiers (200) in a chain is connected to an analog-digital-converter (400) for converting analog signals into digital signals.

28. (Amended) A receiver (1,2) according to claim 26, wherein [characterised in that] said gain (G) of said received radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) including said noise power (kTBF) when an output signal (S_{tot}) is measured at at least one output of said one or more amplifiers (100,200).

29. (Amended) A receiver (1,2) according to claim 20 [any one of claims 20-27], wherein [characterised in that] said gain (G) of said received radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) when an output signal (S_{tot}) is measured at at least one output of said one or more amplifiers (100,200).

30. (Amended) A receiver (1,2) according to claim 27 [any one of claims 20-27], wherein [characterised in that] said gain (G) of said received radio signal (S_i+N_i) is estimated from said calibrating signal (N_a+N_i) when an output signal (S_{tot}) is measured after said analog-digital-converter (400).